

Patent Claims

1. Optical data carrier in disc format having at least one CD layer having optically
5 readable CD data structures whose lengths, to suit EFM modulation, are between
3 times and 11 times a basic length T, wherein
 - 3 times the basic length (the 3T value) is at least 0.9 micrometres,
 - 11 times the basic length (the 11T value) is at least 3.3 micrometres,
 - from that surface of the data carrier through which the CD layer is read, the
10 CD layer is situated at a depth of less than 1.1 mm,
 - the data carrier has at least one further data layer, and
 - the refractive index of a transparent material which is used for the CD
substrate is less than 1.58.
- 15 2. Data carrier according to claim 1, characterised in that the data carrier has, in
addition to the CD layer, one or two DVD layers, the CD layer and the DVD
layer(s) being read from opposite sides of the data carrier.
3. Data carrier according to claim 1, which comprises at least one data layer which is
20 readable and/or writable and/or re-writable by a blue laser.
4. Data carrier according to claim 3, in which the data layer which is readable and/or
writable and/or re-writable by the blue laser, and the CD layer, are read from
opposite sides of the data carrier.
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5. Optical data carrier in disc format having at least one CD layer having optically
readable CD data structures whose lengths, to suit EFM modulation, are between
3 times and 11 times a basic length T, wherein
 - 3 times the basic length T (the 3T value) is at least 0.9 micrometres,
 - 30 - 11 times the basic length (the 11T value) is at least 3.3 micrometres,
 - from that surface of the data carrier through which the CD layer is read, the
CD layer is situated at a depth of less than 1.1 mm,
 - the data carrier has at least one further data layer, namely a DVD layer,

- the CD layer and the at least one DVD layer are read from opposite sides of the data carrier, and
- the data carrier has a DVD substrate of a thickness of less than 0.570 mm.

5 6. Data carrier according to claim 5, in which the thickness of the DVD substrate is at least 0.55 mm.

7. Data carrier according to claim 5, in which the thickness of the DVD substrate is 0.55 mm.

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8. Data carrier according to claim 5, characterised in that the data carrier has two DVD layers, and in that the thickness of the DVD substrate is reduced from the standard definition of 0.55 mm which applies in the two-layered case.

15 9. Data carrier according to one of claims 5 to 8, characterised in that the pits and lands of the at least one DVD layer are enlarged to ensure optical compensation for a degradation of the reading signal.

20 10. Data carrier according to one of claims 5 to 9, characterised in that the refractive index of a transparent material which is used for a CD substrate is less than 1.58.

11. Data carrier according to one of claims 1, 2, 3, 4 and 10, in which the refractive index of the transparent material which is used for the CD substrate is less than 1.55.

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12. Data carrier according to one of claims 1, 2, 3, 4, and 10, in which the refractive index of the transparent material which is used for the CD substrate is in the range from 1.40 to 1.55.

30 13. Data carrier according to one of claims 1, 2, 3, 4, 10, 11 and 12, in which the transparent material which is used for the CD substrate has a lower refractive index than polycarbonate.

14. Data carrier according to one of claims 1 to 13, characterised in that 3 times the basic length T (the 3T value) is at least 0.98 micrometres and 11 times the basic length (the 11T value) is at least 3.57 micrometres,
- 5 15. Data carrier according to one of claims 1 to 13, characterised in that 3 times the basic length T (the 3T value) is at least 1.0 micrometre and 11 times the basic length (the 11T value) is at least 3.67 micrometres,
- 10 16. Data carrier according to one of claims 1 to 15, characterised in that a track pitch of the CD data structures is less than 1.6 micrometres and preferably less than 1.5 micrometres.
17. Data carrier according to one of claims 1 to 16, characterised in that the CD layer is at least partly, and preferably entirely, read-only.
- 15 18. Data carrier according to one of claims 1 to 17, characterised in that the total thickness of the data carrier is not more than 1.7 mm and preferably not more than 1.6 mm.
- 20 19. Data carrier according to one of claims 1 to 17, characterised in that the total thickness of the data carrier is not more than 1.5 mm.
20. Data carrier according to one of claims 1 to 19, characterised in that the data carrier has a diameter of less than 12 cm and preferably a diameter of approximately 8 cm.
- 25 21. Data carrier according to one of claims 1 to 20, in which the CD layer is combined with a DVD layer and an SACD layer, the DVD layer and the SACD layer being read from opposite sides of the data carrier.
- 30 22. Data carrier according to claim 21, in which the CD layer is situated below the SACD layer so that the SACD layer and the CD layers are optically separated from the DVD layer.

23. Data carrier according to one of claims 1 to 22, characterised in that, from that surface of the data carrier through which the CD layer is read, the CD layer is situated at a depth of less than 1.05 mm, and preferably of less than 1.0 mm.
- 5 24. Data carrier according to one of claims 1 to 23, characterised in that, from that surface of the data carrier through which the CD layer is read, the CD layer is situated at a depth of approx. 0.9 mm,
- 10 25. Data carrier according to one of claims 1 to 24, in which the refractive index of a transparent material which is used for a further substrate is less than 1.58 and preferably less than 1.55.
- 15 26. Data carrier according to one of claims 1 to 24, in which the refractive index of a transparent material which is used for a further substrate is in the range from 1.40 to 1.55.
27. Data carrier according to one of claims 1 to 26, which has at least two substrates having different refractive indexes.
- 20 28. Data carrier according to one of claims 1 to 27, characterised in that the readable structures of the CD layer are widened.
- 25 29. Data carrier according to one of claims 1 to 27, characterised in that the readable structures of the CD layer are of a width of more than 500 nm and preferably of a width of more than 600 nm.